



Model No.13
Programme Specifications
Architectural Engineering
Academic Year 2017 - 2018

Faculty of Engineering at benha

Farabi Quality Management of Education and Learning - 5/2/20195/2/2019

University : Benha university

Faculty : Faculty of Engineering at benha

A- Basic information :

1. Programme title	Architectural Engineering
2. Programme type	Single
3. Adoption program Date	01/09/2017
4- Department responsible for the program	Department

B- Specialized information :

1- General objectives of the program

- 1- Design robust architectural projects with creativity and technical mastery.
- 2- Demonstrate investigative skills, attention to details, and visualize/ conceptualize skills.
- 3- Adopt a holistic problem solving approach for complex, ambiguous, and open-ended challenges and scenarios.
- 4- Demonstrate knowledge of cultural diversity, differences and the impact of a building on community character and identity.
- 5- Address urban issues, planning, and community needs through design work.
- 6- Recognize the new role of architectural engineer as the leader of design projects—who has the ability to understand, assemble, and coordinate all of the disciplines—to create a sustainable environment.

2- Intended learning outcomes (ILOS)

a- Knowledge and Understanding

- a1- Principles of architectural design, and the preparation and presentations of design projects in a variety of contexts, scales, types and degree of complexity
- a2- Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions
- a3- c. Fundamentals of building acquisition, operational costs, and of preparing construction documents and specifications of materials, components, and systems appropriate to the building
- a4- Theories and legislations of urban and regional planning
- a5- The processes of spatial change in the built and natural environments; patterns and problems of cities; and positive & negative impacts of urbanization.
- a6- The significance of urban spaces and the interaction between human behavior, built environment and natural environment
- a7- Theories and histories of architecture, planning, urban design, and other related disciplines
- a8- Physical modeling, multi-dimensional visualization, multimedia applications, and computer-aided design
- a9- The role of the architecture profession relative to the construction industry and the overlapping interests of organizations representing the built environment

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- a10- Various dimensions of housing problem and the range of approaches, policies, and practices that could be carried out to solve this problem
 - a11- Principles of sustainable design, climatic considerations, and energy consumption and efficiency in buildings and their impacts on the environment

b- Intellectual Capacity

- b1- Integrate different forms of knowledge, ideas from other disciplines, and manage information retrieval to create new solutions
- b2- Think three-dimensionally and engage images of places & times with innovation and creativity in the exploration of design
- b3- Predict possible consequences, by- products and assess expected performance of design alternatives
- b4- Reconcile conflicting objectives and manage the broad constituency of interests to reach optimum solutions
- b5- Integrate relationship of structure, building materials, and construction elements into design process
- b6- Integrate community design parameters into design projects
- b7- Appraise the spatial, aesthetic, technical and social qualities of a design within the scope and scale of a wider environment
- b8- Discuss, search and formulate informed opinions appropriate to specific context and circumstances affecting architecture profession & practice
- b9- Analyze the range of patterns and traditions that have shaped and sustained cultures and the way that they can inform design process

c- Professional Skills

- c1- Produce and present architectural, urban design, and planning projects using an appropriate range of media and design-based software
- c2- Produce professional workshop and technical drawings using traditional drawing and computer-aided drawings' techniques
- c3- Use appropriate construction techniques and materials to specify and implement different designs
- c4- Participate professionally in managing construction processes
- c5- Demonstrate professional competence in developing innovative and appropriate solutions of architectural and urban problems
- c6- Display imagination and creativity
- c7- Respect all alternative solutions; changes in original plan of the project, differences in style, culture, experience and treat others with respect
- c8- Provide leadership and education to the client particularly with reference to sustainable design principles
- c9- Respond effectively to the broad constituency of interests with consideration of social and ethical concerns
- c10- Contribute positively to the aesthetic, architecture and urban identity, and cultural life of the community

d- General Skills

- d1- Collaborate effectively within multidisciplinary team

3- Academic standards

- 1- a. Principles of architectural design, and the preparation and presentations of design projects in a variety of contexts, scales, types and degree of complexity.
- 2- b. Principles of building technologies, structure & construction methods, technical installations, properties of materials, and the way they may influence design decisions.

4- External references for standards (Benchmarks)

1- Ain Shams University - Faculty of Engineering: Architecture Department- ASU

5- Curriculum structure and contents

a - Programme duration

b - Programme Structure

1 - No of hours /No of Units :	Theoretical	0	Practical	0	Total	0
	Compulsory	165	Elective	9	Optional	
2 - Basic sciences Courses :						
3 - Social sciences and humanities courses :						
4 - Specialized courses :						
5 - Other Courses :						
6 - Practical/field training:						

6- Programme courses

(اللائحة الداخلية لكلية الهندسة ببنها) الفرقة الرابعة / الهندسة المعمارية-

a- Compulsory :

code	Course Title	No.of Units	No. of hours/week			Semester
			Lect.	Excer.	Lab.	
١٤١١ع	Architectural Design 4	6	2	4		First Semster
١٥٠٠ع	graduation project	20	5	13	2	First Semster
١٤٢١ع	Operational designs 2	8	2	4	2	First Semster
١٤٠٢ع	Artistic compositions	14	2	2	0	Second Semster
١٤٠٠ع	field traning	4	0	0	2	Second Semster
١٥٢٢ع	Projects management	5	3		2	Second Semster

b- Optional :

code	Course Title	No.of Units	No. of hours/week			Semester
			Lect.	Excer.	Lab.	
١٤٦١ع	Town Planning 2	3	2	4	0	First Semster
١٤٥١ع	Computer in environmental design					First Semster
١٤٦٥ع	Means of computer analysis information systems 1	9	2	4	0	First Semster
١٤١٣ع	The foundations of interior design					First Semster
١٤٦٣ع	Architectural Design 2	8	2	4		First Semster
١٥٢٤ع	Quantities and specifications	7				Second Semster
١٥٣٢ع	Architecture of Islamic societies	6	2	4		Second Semster
١٥٥٢ع	Environmental impact assessment systems and standards for buildings	6	2	4	0	Second Semster
١٥١٦ع	Formation and aesthetics					Second Semster
١٥١٤ع	Interior Design-Interior Design	6	2	4		Second Semster
١٥٦٢ع	Methods of Computer Analysis 2	9	2	4	0	Second Semster
١٥١٢ع	Architectural criticism	6	2	4		Second Semster

(الإئحة الداخلية لكلية الهندسة بينها) الفرقة الثالثة / الهندسة المعمارية-

a- Compulsory :						
code	Course Title	No.of Units	No. of hours/week			Semester
			Lect.	Excer.	Lab.	
١٣٠١ع	Computer Applications 2	14	2	2	0	First Semester
١٣٦١ع	Town Planning 1	6	2	4	0	First Semester
١٣١١ع	Architectural Design A3	10	3	5	2	First Semester
١٣٠٣ع	personal skills	14	2	0	0	First Semester
١٣٣١ع	History and Theory of Architecture A3	4	2	2		First Semester
١٣٢١ع	Executive Designs A1	8	2	4	2	First Semester
١٣١٢ع	Architectural Design B3	6	2	4		Second Semester
١٣٠٢ع	Technical Report	2	2			Second Semester
١٣٣٢ع	History and Theory of Architecture B3	4	2	2		Second Semester
١٣٢٢ع	Executive Designs B1	8	2	4	2	Second Semester
١٣٦٢ع	Architectural Design 1	10	2	4		Second Semester
b- Optional :						
code	Course Title	No.of Units	No. of hours/week			Semester
			Lect.	Excer.	Lab.	
١٣٨٢ع	Computer Applications	13				Second Semester
١٣٥٢ع	Introduction to environmental studies	4	2	2		Second Semester
١٣٦٤ع	Design and coordination of sites					Second Semester
١٣٢٤ع	Building technology	4	2	2		Second Semester

(الإئحة الداخلية لكلية الهندسة بينها) الفرقة الثانية / الهندسة المعمارية-

a- Compulsory :						
code	Course Title	No.of Units	No. of hours/week			Semester
			Lect.	Excer.	Lab.	
١٢٠٣ع	computer applications	9	2	1	2	First Semester
١٢٣١ع	History and theories of architecture	4	2	2		First Semester
١٢٠١ع	Environmental control	5	2	3		First Semester
١٢٧١د	Reinforced concrete and foundations	1	3	3	0	First Semester
١٢٢١ع	Architectural Design	8	2	2	2	First Semester
١٢١١ع	Architectural Design	10	3	5	2	First Semester
١٢١٢ع	Architectural Design	6	2	4		Second Semester
١٢٠٢ع	Human architectural studies		2	0	2	Second Semester
١٢١٦ع	Technical compositions					
١٢٣٢ع	History and theories of architecture	5	2	2		Second Semester
١٢٢٢ع	Architectural Design	6	2	4		Second Semester
١٢٧٢د	Reinforced concrete and foundations	1	3	3	0	Second Semester
b- Optional :						

(اللائحة الداخلية لكلية الهندسة ببناها) الفرقة الاولى / الهندسة المعمارية-

a- Compulsory :

code	Course Title	No.of Units	No. of hours/week			Semester
			Lect.	Excer.	Lab.	
١١٧١د	Construction Theory	6	3	3		First Semster
١١٣١ع	History and theories of architecture	4	2	2		First Semster
١١٢١ع	Architectural construction	6	2	4		First Semster
١١١١ع	Architectural design	10	3	5	2	First Semster
١١٠٣ج	English Language	1			2	First Semster
١١٠١ع	Visual training	7	2		5	First Semster
١١٠٤ج	human rights	2	2	-	-	Second Semster
١١٠٢ع	Shadow and perspective	6	2	4		Second Semster
١١٧٢د	Flat area	2	2	2	-	Second Semster
١١١٢ع	Architectural design	10	3	5	2	Second Semster
١١٣٢ع	History and theories of architecture	4	2	2		Second Semster
١١٢٢ع	Architectural construction	7	2	2	2	Second Semster
١١٧٤د	Properties and testing of materials	3	3		2	Second Semster

b- Optional :

7- Programme admission requirements

- 1- The students from the Egyptian secondary education or equivalent certificate with major in mathematics.
- 2- Marks of Preparation of Standard Program Selected Form

8- Regulations for progression and programme completion

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- 1- For Passing : Passing all the third year courses with at most two exam courses for the previous years,For Completion : By passing all the curriculum courses

Benha university|Faculty of Engineering at benha|الهندسة المعمارية|الفرقة الثالثة

- 2- For Passing : Passing all the second year courses with at most two exam courses for the previous years,For Completion : By passing all the curriculum courses

Benha university|Faculty of Engineering at benha|الهندسة المعمارية|الفرقة الثانية

- 3- For Passing : Passing all the first year courses with at most two exam courses for the previous years,For Completion : By passing all the curriculum courses

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- 4- For Passing : Passing all the preparatory year courses with at most two exam courses for the previous year,For Completion : By passing all the curriculum courses

9- Assessment rules enrolled in the program

No	Method	As measured from the intended learning outcomes
1-	Written exams	Knowledge & Understanding skills - Intellectual skills
2-	Oral exams	Knowledge & Understanding, Intellectual, General skills
3-	Practical exams	Knowledge & Understanding skills - Profesional skills - General & transferable skills.
4-	Scientific projects	Practical and professional skills
5-	Reports and essays	General skills
6-	Lecture discussions	Knowledge & Understanding skills - Intellectual skills - Profesional skills - General & transferable skills.

10- Methods of assessment program

No	Evaluator	Tool	Sample
1-	1- Senior Students	Students of last level	Evaluation sheet
2-	2- Alumni	Graduates	Evaluation sheet & Seminars
3-	3- Stakeholders (Employers)	Stakeholders	Evaluation sheet & Seminars
4-	4- External Evaluator	External evaluator or external examiner	Evaluation sheet & Seminars & Visits
5-	5- Others		

11- Matrix of knowledge and skills

(اللائحة الداخلية لكلية الهندسة ببنها) الفرقة الرابعة / الهندسة المعمارية-

a- Compulsory :					
No.	Course Title	Knowledge and Understanding	Intellectual capacity	Professional skills	General Skills
1-	Architectural Design 4	a6,a7,a8,a9,a10,a11	b4,b5,b6,b7,b8,b9	c4,c5,c6,c7,c8,c9,c10	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
2-	graduation project	P0a3,P0a4,P0a5,P0a6,P0a8,P0a9,P0a11,P0a12,a1,a2,a4,a5,a6,a8,a9,a11	P0b1,P0b2,P0b3,P0b4,P0b5,P0b7,P0b8,P0b9,P0b10,P0b11,P0b12,b1,b2,b4,b5,b6,b7,b8,b9	P0c1,P0c2,P0c3,P0c4,P0c5,P0c6,P0c9,P0c11,c1,c3,c4,c5,c6,c7,c8,c9,c10	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
3-	Operational designs 2	P0a1,P0a2,P0a3,P0a5,P0a6,P0a7,P0a8,P0a12,a1,a2,a3,a5,a9,a10	P0b1,P0b2,P0b3,P0b4,P0b6,P0b7,b1,b2,b3,b4,b9	P0c1,P0c2,P0c3,P0c5,P0c10,P0c11,c4,c9	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
4-	Practicing a profession and legislation	a3,a9	b1,b8	c4,c9	
5-	field traning	a9	b1,b2,b5	c3,c4,c5,c8	
6-	Projects management	Course do not need specification			

b- Optional :					
No.	Course Title	Knowledge and Understanding	Intellectual capacity	Professional skills	General Skills
7-	Town Planning 2	a4,a5,a6,a8,a11	b1,b3,b6,b7	c1,c5,c6,c7,c10	P0d2,P0d3,P0d6,P0d7
8-	Computer in environmental design	a8,a11	b7,b8	c8	P0d1,P0d3,P0d4,P0d9
9-	Means of computer analysis information systems 1	a1,a8,a9	b1,b2	c1	
10-	The foundations of interior design	Course do not need specification			
11-	Architectural Design 2	a5,a6,a7	b7	c5,c10	P0d3,P0d6,P0d9
12-	Quantities and specifications	a3	b1,b4	c4	
13-	Architecture of Islamic societies	P0a4,P0a5,P0a9,P0a11,a1,a5,a6,a7,a9,a11	P0b2,P0b3,P0b4,P0b10,b2,b4,b6,b7,b8,b9	P0c2,P0c4,P0c11,c1,c4,c5,c6,c7,c9,c10	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
14-	Environmental impact assessment systems and standards for buildings	a11	b1,b5,b7,b8	c5,c6,c7	
15-	Formation and aesthetics	Course do not need specification			
16-	Interior Design	a1,a3,a8	P0b3,P0b10,b1,b2,b5	c1,c5,c6,c7,c8	P0d1,P0d2,P0d3,P0d4,P0d6,P0d7
17-	Methods of Computer Analysis 2	a1,a2,a8,a9	b1,b2	c1	
18-	Architectural criticism	P0a4,P0a5,P0a9,P0a11,P0a12,a1,a5,a6,a9	P0b2,P0b3,P0b4,P0b10,P0b12,b1,b2,b3,b6,b7,b8,b9	P0c2,P0c3,P0c4,c5,c6,c7,c8,c9,c10	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9

(اللائحة الداخلية لكلية الهندسة ببنها) الفرقة الثالثة / الهندسة المعمارية-

a- Compulsory :					
No.	Course Title	Knowledge and Understanding	Intellectual capacity	Professional skills	General Skills
1-	Computer Applications 2	a8	b1,b2	c1,c6	
2-	Town Planning 1	a4,a5,a6,a7,a11	b4,b6,b7	c1	
3-	Architectural Design A3	a5,a8,a11	b1,b2,b5,b6,b7,b8	c5,c6,c7,c10	P0d1,P0d2,P0d3,P0d6,P0d7,P0d9
4-	personal skills	P0a2,P0a5,P0a7,P0a9,P0a10	P0b3,P0b4,P0b5,b1,b8	P0c6,P0c11,P0c12,c6,c7	P0d1,P0d2,P0d5,P0d6,P0d7
5-	History and Theory of Architecture A3	P0a4,P0a5,P0a11,a1,a7	P0b5,b2,b9	P0c10,c7,c9	P0d1,P0d2,P0d7,P0d9
6-	Executive Designs A1	P0a3,P0a4,P0a5,P0a8,a3,a11	P0b2,P0b5,P0b7,P0b9,b5	P0c2,c3,c4	P0d6,P0d7

7-	Architectural Design B3	P0a1,P0a2,P0a3,P0a4,P0a5,P0a6	P0b1,P0b2,P0b3,P0b4,P0b5,P0b6	P0c1,P0c2,P0c3,P0c4,P0c5,P0c6	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6
8-	Technical Report	P0a2,P0a9,P0a10	P0b12,b1	P0c6,c1	P0d1,P0d4,P0d9
9-	History and Theory of Architecture B3	P0a4,P0a5,P0a9,P0a12,a1,a6,a7,a9,a11	P0b3,P0b4,P0b10,b2,b4,b6,b7,b8,b9	P0c4,P0c7,c4,c5,c6,c7,c8,c9,c10	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
10-	Executive Designs B1	P0a1,P0a2,P0a3,P0a6,P0a8,P0a12,a8,a9,a11	P0b1,P0b2,P0b5,P0b7,P0b8,b5	P0c1,P0c6,P0c12,c3,c4	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7
11-	Architectural Design 1	a5,a6,a7	b7,b8	c1,c5	P0d3,P0d6,P0d9

b- Optional :

No .	Course Title	Knowledge and Understanding	Intellectual capacity	Professional skills	General Skills
12-	Computer Applications	a8	b1,b2	c1,c6	
13-	Introduction to environmental studies	a5,a11	b9,b8	c3,c6	P0d1,P0d4,P0d9
14-	Design and coordination of sites	Course do not need specification			
15-	Building technology	a2,a3,a9	b1,b7	c3,c6	P0d1,P0d3,P0d7

(اللائحة الداخلية لكلية الهندسة بينها) الفرقة الثانية / الهندسة المعمارية-

a- Compulsory :					
No .	Course Title	Knowledge and Understanding	Intellectual capacity	Professional skills	General Skills
1-	computer applications	a8	P0b1,P0b3,b2,b3	c1,c5,c6,c7	P0d7,P0d8
2-	History and theories of architecture	P0a4,P0a5,a1,a7	b3,b8,b9	c7,c9	P0d1,P0d2,P0d7,P0d9
3-	Environmental control	P0a1,P0a3,P0a5	P0b1,P0b2,P0b3	P0c1,P0c2,P0c3	P0d1,P0d2,P0d3,P0d4,P0d5
4-	Reinforced concrete and foundations	P0a1,P0a2	P0b2,P0b7	P0c1,P0c3	P0d3
5-	Architectural Design	a2,a3	b5	P0c10,c3	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
6-	Architectural Design	a1,a2,a8,a11,P0a8	b1,b2,b3,b8,b6,b7	c1,c6,c7,c9,P0c2,P0c3,P0c4,P0c6,P0c7,c10	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
7-	Architectural Design	P0a1,P0a2,P0a3,P0a4	P0b1,P0b2,P0b3,P0b4	P0c1,P0c2,P0c3,P0c4	P0d1,P0d2,P0d3,P0d4,P0d5

8-	Human architectural studies	P0a9,P0a10,P0a11,a6	P0b3,P0b4,P0b11,P0b12,b1,b8,b9	P0c6,P0c7,P0c12,c6	P0d2,P0d3,P0d7
9-	History and theories of architecture	P0a2,a1	P0b3,P0b5,b5,b7	P0c3,P0c4,c6,c7	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
10-	Architectural Design	P0a1,P0a2,P0a3,P0a5,P0a6,P0a7,P0a8,P0a12,a1,a2,a3,a5,a9,a10	P0b1,P0b2,P0b3,P0b4,P0b6,P0b7,b1,b2,b3,b4,b9	P0c1,P0c2,P0c3,P0c5,P0c10,P0c11,c4,c9	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
11-	Reinforced concrete and foundations	P0a3,P0a4	P0b2,P0b7,P0b9	P0c4	P0d3
12-	Technical compositions	P0a1,P0a4,P0a5,P0a8	P0b3,P0b4,P0b9	P0c1,P0c7,P0c10,P0c11	P0d2,P0d7,P0d9

b- Optional :

(اللائحة الداخلية لكلية الهندسة ببناها) الفرقة الاولى / الهندسة المعمارية-

a- Compulsory :					
No .	Course Title	Knowledge and Understanding	Intellectual capacity	Professional skills	General Skills
1-	Construction Theory	a1,a2	b5,b6	c3,c5,c8	
2-	History and theories of architecture	P0a5,P0a9,a1,a7,P0a4	P0b5,b2,b9	c10,c7,c9	P0d2,P0d7,P0d9,P0d1
3-	Architectural construction	P0a1,P0a2,P0a3,P0a4,P0a5,P0a7,P0a12,a1,a2,a3,a4,a5,a9,a10	P0b1,P0b2,P0b3,P0b4,P0b7,b1,b2,b3,b4,b9	P0c1,P0c2,P0c3,P0c5,P0c10,P0c11,c4,c9	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
4-	Architectural design	P0a1,P0a2,P0a3,P0a4,P0a5,P0a10	P0b2,P0b3,P0b4	P0c2,P0c3	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
5-	English Language	Course do not need specification			
6-	Visual training	P0a4,a1	P0b3,P0b4,b2	P0c2,P0c3	P0d1,P0d2,P0d3
7-	human rights	Course do not need specification			
8-	Shadow and perspective	P0a1,P0a2,P0a3,P0a4,P0a5,P0a8,P0a12,a1	P0b1,P0b2,P0b3,P0b4,P0b5,P0b7,P0b10,P0b11,P0b12,b1,b2,b3,b4,b8,b9	P0c1,P0c2,P0c3,P0c4,P0c8,P0c9,P0c11,c1,c6,c8	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
9-	Flat area	a2,a3,a10	b1,b2	c1	
10-	Architectural design	a1,a2	b1,b2,b3,b4,b5,b6	c6	P0d1,P0d2,P0d3,P0d4,P0d5,P0d6,P0d7,P0d8,P0d9
11-	History and theories of	P0a1,P0a5,P0a12	P0b2,P0b4	P0c1,P0c4	P0d1,P0d3,P0

	architecture	,P0a4			d5
12-	Architectural construction	P0a8,P0a3,P0a5, a2,P0a10,P0a4	P0b3,P0b12,P0 b2,P0b7,b5	P0c1,P0c7, P0c12,c3,P0 c2,P0c3,P0c 10	P0d1,P0d2,P0 d3,P0d5,P0d6 ,P0d8,P0d9
13-	Properties and testing of materials	Course do not need specification			
b- Optional :					

Program Coordinators :

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